

IN THE SPECIFICATION:

On page 2, line 5, after "1993," insert --now U.S. Patent No. 5, 484, 437,--.

(NE) On page 2, line 6, after "No." insert --07/968,240, filed October 29, 1992, now U.S. Patent No. 5, 741, 253, which is a continuation of application serial No.--.

On page 23, line 27, after "08/074,781," insert --now U.S. Patent No. 5, 484,437,--.

IN THE CLAIMS:

Please cancel claims 67-89, amend claim 90, and add new claims 95-140, as follows:

90. A depth limiting device for a surgical instrument having a shaft and a grooved portion on [said] the shaft, [said] the surgical instrument being operated through a guide [means] having a [passage way] passageway for receiving [said] the shaft, said depth limiting device comprising:

BT
[an adjustable] a collar for limiting the depth of [said] passage of the shaft of the surgical instrument through the passageway of the guide engaging [said] the shaft, said collar having a diameter larger than the diameter of [said] the shaft and larger than [said] the passageway; and

a pair of diametrically opposed flange members pivotably mounted to said collar capable of engaging [said] the grooved [area] portion, said flanged members being spring biased to engage [said] the grooved portion when biased, and disengage [said] the grooved portion when unbiased.

Please add the following new claims:

--95. A spinal distractor for use in spinal fusion surgery for positioning adjacent vertebral bodies of two adjacent vertebrae adjacent a disc space in selected relationship to each other, said spinal distractor comprising:

a body having a height greater than the height of the disc space; and
at least one disc penetrating extension extending from said body for insertion into the lateral aspect of the disc space from a position anterior to the transverse processes of the adjacent vertebrae, said disc penetrating extension having a portion for bearing against each of the adjacent endplates of the two adjacent vertebral bodies, said portion of said disc penetrating extension having a height less than the height of said body and a length that is less than the transverse width of the vertebral bodies, said length being greater than the depth of the spinal disc intermediate the two adjacent vertebral bodies between which said disc penetrating extension is inserted.

B3

96. The spinal distractor of claim 95, further comprising means for limiting the penetration of said disc penetrating extension into the disc space.

97. The spinal distractor of claim 96, wherein said limiting means comprises a shoulder on said body at the juncture of said disc penetrating extension and said body for preventing said body from entering the disc space.

LAW OFFICES

FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N.W.
WASHINGTON, DC 20005
202-408-4000

98. The spinal distractor of claim 95, wherein said disc penetrating extension has a tapered front end to facilitate insertion of said disc penetrating extension into the disc space.

99. The spinal distractor of claim 95, wherein said body has a longitudinal passageway adapted to receive an alignment pin.

100. The spinal distractor of claim 95, wherein said body has means for engaging an extraction device for extracting said disc penetrating extension from the disc space.

101. The spinal distractor of claims 100, wherein said engaging means includes a mating member for mating with an extraction device.

102. The spinal distractor of claim 95, in combination with a guard having an opening for providing protected access to the disc space and the adjacent vertebral bodies, said spinal distractor passing through said opening.

103. The spinal distractor and guard combination of claim 102, wherein said guard maintains said spinal distractor in coaxial alignment with the longitudinal axis of the opening.

104. The spinal distractor and guard combination of claim 103, further in combination with a spinal implant having upper and lower surfaces for bearing upon and supporting each of the two adjacent vertebral bodies, said spinal implant passing through said opening of said guard.

105. The spinal distractor, guard, and spinal implant combination of claim 104, wherein said guard maintains said spinal implant in coaxial alignment with the longitudinal axis of the opening of said guard.

106. The spinal distractor and guard combination of claim 102, further in combination with a bone removal device having a portion sized for passage through said opening of said guard for forming through said guard an implantation space across the disc space.

107. The spinal distractor, guard, and bone removal device combination of claim 106, further in combination with an implant driver having means for engaging an implant, said implant driver having a portion sized for passage through said opening of said guard for passing an implant through said guard.

LAW OFFICES

FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

108. An apparatus for use in human spinal surgery across a disc space between the vertebral bodies of two adjacent vertebrae, comprising:

a guard member having a height greater than the height of the disc space and an opening for providing protected access to the lateral aspect of the disc space and the adjacent vertebral bodies from a position anterior to the transverse processes of the adjacent vertebrae, said opening having a maximum height; and

at least one disc penetrating extension extending from said guard member for insertion into the lateral aspect of the disc space from a position anterior to the transverse processes of the adjacent vertebrae, said disc penetrating extension having a portion for bearing against each of the adjacent endplates of the adjacent vertebral bodies, said portion of said disc penetrating extension having a height less than the height of said guard member and a length that is less than the transverse width of the vertebral bodies, said length being greater than the depth of the disc space, said portion of said disc penetrating extension having an upper surface adapted to contact one of the adjacent endplates of the adjacent vertebral bodies and a lower surface adapted to contact the other of the adjacent endplates of the adjacent vertebral bodies at more than one point through the disc space.

B3

109. The apparatus of claim 108, wherein said upper and lower surfaces are at least in part parallel to each other.

LAW OFFICES

FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N.W.
WASHINGTON, DC 20005
202-408-4000

110. The apparatus of claim 108, wherein said guard member has an external surface at its distal end and said disc penetrating extension is at least in part coextensive with said external surface.

111. The apparatus of claim 108, further comprising a second disc penetrating extension extending from said guard member for insertion into the disc space and for bearing against the endplates of the adjacent vertebral bodies.

112. The apparatus of claim 111, wherein said disc penetrating extensions are diametrically opposed to each other.

113. The apparatus of claim 111, wherein said disc penetrating extensions have the same height.

114. The apparatus of claim 111, wherein said disc penetrating extensions are of a different height.

115. The apparatus of claim 111, wherein said disc penetrating extensions are of a different length.

116. The apparatus of claim 108, wherein said portion of said disc penetrating extension has a height between said upper and lower surfaces that approximates the height of the normal disc space between the adjacent vertebral bodies.

117. The apparatus of claim 108, wherein said guard member conforms at least in part to the exterior surface of the vertebral bodies of the lateral aspect of the adjacent vertebral bodies.

118. The apparatus of claim 117, wherein said upper and lower surfaces are at least in part parallel to each other.

119. The apparatus of claim 117, further comprising a second disc penetrating extension extending from said guard member for insertion into the disc space and for bearing against the endplates of the adjacent vertebral bodies.

120. The apparatus of claim 119, wherein said disc penetrating extensions are diametrically opposed to each other.

121. The apparatus of claim 119, wherein said disc penetrating extensions have the same height.

122. The apparatus of claim 119, wherein said disc penetrating extensions are of a different height.

123. The apparatus of claim 119, wherein said disc penetrating extensions are of a different length.

LAW OFFICES

FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N.W.
WASHINGTON, DC 20005
202-408-4000

124. The apparatus of claim 117, wherein said portion of said disc penetrating extension has a height between said upper and lower surfaces that approximates the height of the normal disc space between the adjacent vertebral bodies.

125. The apparatus of claim 108, further comprising means for penetrating the two adjacent vertebral bodies.

126. The apparatus of claim 125, wherein said penetrating means includes teeth for insertion into the spine.

127. The apparatus of claim 125, wherein said penetrating means includes at least one prong for insertion into the spine.

N
128. The apparatus of claim 108, further comprising a removable inner sleeve.

B3
129. The apparatus of claim 108, further comprising means for limiting the depth of penetration of said disc penetrating extension into the disc space.

130. The apparatus of claim 108, wherein said guard member comprises a hollow tube.

Sub C 3
131. The apparatus of claim 130, wherein said hollow tube has a detachable distal end portion.

132. The apparatus of claim 108, wherein said disc penetrating extension has a tapered leading end to facilitate placement of said disc penetrating extension into the disc space.

133. The apparatus of claim 108 in combination with a bone removal device having a portion sized for passage through said opening of said guard for forming through said opening of said guard member an implantation space across the disc space.

134. The apparatus of claim 133 in combination with an implant driver sized in part for passage through said opening of said guard for passing an implant through said guard member and into the disc space.

135. The apparatus of claim 108 in combination with a spinal distractor sized for passage through said guard member, said spinal distractor having a body and a disc penetrating member extending from said body and into the disc space between the two adjacent vertebral bodies for bearing against the adjacent endplates of the two adjacent vertebral bodies.

136. The apparatus of claim 108, wherein said disc penetrating extension has a tapered leading end to facilitate placement of said disc penetrating extension into the disc space.

137. The apparatus of claim 108 in combination with a tap for insertion through said guard member for tapping the two adjacent vertebral bodies.

LAW OFFICES

FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N.W.
WASHINGTON, DC 20005
202-408-4000

138. The apparatus of claim 108, further comprising an extractor coupler having one end adapted to couple with said guard member and an opposite end adapted to couple with an extraction device.

139. An apparatus for use in human interbody spinal surgery across a disc space between the vertebral bodies of two adjacent vertebrae, comprising:

a guard member having proximal end, a distal end, a height greater than the height of the disc space, and at least one passageway for providing protected access to the disc space and the adjacent vertebral bodies, said passage having a maximum height; and

at least one disc penetrating extension extending from said distal end of said guard member for insertion into the disc space, said disc penetrating extension being separable from said proximal end of said guard, said disc penetrating extension having a portion for bearing against each of the adjacent endplates of the adjacent vertebral bodies, said portion of said disc penetrating extension having an upper surface adapted to contact one of the adjacent endplates of the adjacent vertebral bodies and a lower surface adapted to contact the other of the adjacent endplates of the adjacent vertebral bodies intermediate the two adjacent vertebral bodies between which said disc penetrating extension is inserted.

SWB
CS

BB